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10/025,634	12/26/2001	Takashi Arakane	OHTN: 012	8275

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EXAMINER	
GARRETT, DAWN L	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/025,634	ARAKANE ET AL.
	Examiner	Art Unit
	Dawn Garrett	1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *7-10 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,11 and 13-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment dated December 3, 2003. Claims 1-4, 17 and 18 were amended. Claims 1-18 are present in the application. Claims 7-10 and 12 are withdrawn as non-elected species. Claims 1-6, 11 and 13-18 are under consideration.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The rejection of claims 1-6, 11, and 15-18 under 35 U.S.C. 102(e) as being anticipated by Hosokawa et al. (US 6,534,199) is maintained.

The applied reference has a common assignee and two common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Hosokawa et al. discloses an organic electroluminescent device comprising an organic light emitting medium between electrodes comprising a mixture of (A) a styryl derivative hole transporting compound and (B) an anthracene derivative (see abstract and col. 25, lines 1-14). The ratio of components (A) and (B) is 1:99 to 99:1 (see col.

25, lines 5-6). Component (A), the hole transporting component, comprises a compound according to formula (III), which reads upon instant formula (1) when "g" is 2 (see col. 3, lines 35-51). Hosokawa formula (III) comprises aromatic groups Ar3, Ar4, and Ar5, which are substituted or unsubstituted aromatic groups with 6 to 40 carbon atoms. Disclosed formula EM34 comprises four condensed rings between the two nitrogen groups per the instant group having "a condensed cyclic group having 3 or more rings" (see col. 15, last formula). Component (B) of the mixed emitting medium is comprised of an anthracene derivative according to Hosokawa formula (I) (see col. 5, lines 7-21), which reads upon instant compound (5) in claim 11. The energy gap, ionization potential, and electron affinity relationships between the hole transporting material and the electron transporting material set forth in instant claims 1, 2, 3, 4, and 18 are deemed to be inherently met by the disclosed Hosokawa compounds (A) and (B) as discussed above (Hosokawa formulas (I) and (III)), because these properties are inherent to an individual compound and the Hosokawa disclosed preferred compounds are the same as the elected species, instant formulas (1) and (5). Hosokawa further discloses it is preferred a layer of a chalcogenide is disposed on the anode and a layer of metal halide or metal oxide is disposed on the cathode per instant claim 15 (see col. 27, lines 2-13). Hosokawa also further discloses it is preferred to include a mixed region of electron transmitting compound and a reducing dopant or a mixed region of a hole transmitting compound and an oxidizing dopant on the surface of at least one electrode per instant claim 16 (see col. 27, lines 22-27). Hosokawa et al. discloses anode materials Au, CuI, ITO, SnO2, ZnO and In-Zn-O, which are exactly the same as

those disclosed by applicant (see instant disclosure, page 33, last paragraph). Accordingly, the relationship between the anode and the hole transporting component set forth in instant claim 17 is deemed to be inherently met by the disclosure of Hosokawa et al., which sets forth the elected hole transporting species per instant formula (1) and exactly the same anode materials as the instant application. Hosokawa et al. is deemed to disclose all components of an electroluminescent device as required by instant claims 1-6, 11, and 15-18.

4. The rejection of claims 1-6, 11, 13, 14, 17, and 18 under 35 U.S.C. 103(a) as being unpatentable over Enokida et al. (US 6,251,531) in view of Inoue et al. (US 5,635,308) is maintained. Enokida et al. teaches an organic electroluminescence device comprising a light-emitting material (1), which reads upon instant hole transporting material compound (1) per instant claim 6 (see abstract). Enokida further teaches the light emitting layer comprising compound (1) may further comprise a known light emitting material, a known dopant, a known hole-injecting material and a known electron-injecting material (see col. 25, lines 21-25). More specifically, the Enokida compound (1) is taught to be used in combination with another light-emitting material such as anthracene (see col. 25, lines 50-53). Although Enokida teaches the use of compound (1) in a mixed layer with another light emitting or electron injecting-transporting compound, Enokida fails to teach a specific anthracene derivative according to instant electron transporting formula (5) per claim 11. Inoue et al. teaches in analogous art, a phenylanthracene derivative for an organic EL element (see abstract). Inoue formula (1) reads upon instant formula (5) (see col. 2, lines 21-25 and

formula (3), col. 3). Inoue teaches a preferred embodiment includes the phenylanthracene derivative in combination with a hole transporting material in a mixed light emitting layer (see col. 3, lines 42-47). It would have been obvious to one of ordinary skill in the art to have selected the phenylanthracene derivative taught by Inoue in the Enokida mixed light emitting layer and have expected an efficiently operating EL device, because Enokida teaches any known light emitting material, including anthracene, can be used in the mixed light emitting layer and Inoue shows phenylanthracene derivatives are well performing light emitting compounds in a mixed light emitting layer comprising hole transporting material in the mixed layer. Enokida teaches compound (3) (per the hole transporting material) is combined with an electron transporting material in a ratio of 5:3 (see example 1, col. 45, lines 43-46) per the instant ratio of hole transporting compound to electron transporting compound of 8:92 to 92:8 in instant claim 1. Enokida further teaches a fluorescent dopant such as fluorescent dyes may be added to the layer with compound (1) in the amount of 0.0001 to 50% by weight per instant claims 13 and 14. Enokida teaches the anode is gold or ITO, which are the same as anodes disclosed by applicant (see instant disclosure page 33). The energy gap, ionization potential, and electron affinity relationships between the hole transporting material and the electron transporting material set forth in instant claims 1, 2, 3, 4, and 18 as well as the anode to hole transporting material relationship of claim 17 are deemed to be inherently met, because the same compounds, instant compounds (1) and (5) and anode material, in the instant EL device are the same as disclosed by Enokida and Inoue.

5. The rejection of claim 15 under 35 U.S.C. 103(a) as being unpatentable over Enokida et al. (US 6,251,531) in view of Inoue et al. (US 5,635,308) in further view of Hung et al. (US 5,776,623) is maintained. Enokida and Inoue are relied upon as set forth above. Enokida and Inoue fail to teach a layer adjacent an electrode comprised of a chalcogenide, a metal halide, or a metal oxide as recited in instant claim 15. Hung et al. teaches in analogous art a cathode for an electroluminescent device comprising a layer of the metal halide LiF between an organic emitting layer and an aluminum cathode (see col. 4, lines 61-67). Hung et al. teaches adding the layer of LiF results in improved device performance over a single layer cathode. It would have been obvious to one of ordinary skill in the art to have selected a bi-layer cathode including a metal halide layer in manufacturing an electroluminescent device, because a bi-layer cathode is shown in the art to increase device performance.

Response to Arguments

6. Applicant's arguments filed December 3, 2003 have been fully considered but they are not persuasive. Applicant states the upper limit of the range of the ratio of (A) to (B) has been changed to 44.4:55.6 by amendment. The examiner respectfully notes this ratio is still within the ratio range disclosed by Hosokawa et al. (US 6,534,199), which is 1:99 to 99:1 (col. 25, lines 1-14). Applicant argues the reference has no discussion with respect to control of the relationship of the energy gap of the hole transporting compound to the energy gap of the electron transporting compound. The examiner respectfully notes that recitation of a newly disclosed property does not

distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that a reference composition does not possess the characteristics recited in the claims. *In re Fritzgerald*, 205 USPQ 597, *In re Best*, 195 USPQ 430. Hosokawa et al. clearly discloses the same hole transporting compounds and electron transporting compounds as applicant's elected species. Any energy gap relationships between the two compounds would be inherent to the similar compounds.

Applicant further argues "Hosokawa et al. '199 also has no awareness of the need to control the ratio of the quantity of components (A) to (B) to achieve the objective of the present invention" and directs the examiner to comparative examples 1 to 3 in the specification (p. 45). The examiner respectfully disagrees these comparative examples demonstrate the criticality of the ratio of hole transporting compounds to electron transporting compounds in the mixed layer. First, comparative example 3 shows a ratio that is within the scope of the present claims. In addition, the device of comparative example 3 demonstrates the same luminance as the device of comparative example 1.

Applicant's argument that "The disclosure in Hosokawa et al. '199 of various compounds that fall within the categories useful in the present invention does not and cannot lead to the present invention. The Examiner has suggested that the energy gap levels are 'inherent' but this is clearly not so as seen from a review of Comparative Example 4 in the present case" is not understood by the examiner, because the reference relied upon does not disclose the same compounds as Comparative Example

4 (TPD and Alq_3). Accordingly, it is not seen how this example is relative to the inherency relationship of the compounds disclosed in Hosokawa et al. '199.

With regard to the rejection over Enokida et al. '531, applicant states the amendment to the claims by adding the language "consisting essentially" "excludes the presence of the polycarbonate in the layers of Enokida et al. '531". The examiner respectfully disagrees the claim language has excluded polycarbonate from being present. As stated in M.P.E.P. 2111.03:

> The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original). See also *Atlas Powder Co. v. E.I. duPont de Nemours & Co.*, 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984); *In re Janakirama - Rao*, 317 F.2d 951, 137 USPQ 893 (CCPA 1963); *Water Technologies Corp. v. Calco, Ltd* ., 850 F.2d 660, 7 USPQ2d 1097 (Fed. Cir. 1988). When an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of", applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See also *Ex parte Hoffman*, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989).

Applicant again makes an argument the reference does not recognize the need for control of the energy gap levels as claimed. Enokida et al. and Inoue et al. clearly disclose the same hole transporting compounds and electron transporting compounds as applicant's elected species. Any energy gap relationships between the two compounds would be inherent between the similar compounds. Applicant's argument with respect to Examples 2-4 of the specification in comparison to Table 4 of Enokida et al. is not persuasive. First, the specification Examples 2-4 are not within the scope of the species under consideration (i.e. Alq_3 is not the electron transporting compound under consideration). Furthermore, Table 4 of the Enokida et al. reference is drawn to examples outside the scope of the embodiments taught by Enokida et al. which are

relied upon for the rejection. Enokida et al. examples 2-44 shown in Table 4 do not have a mixed light emitting layer. In conclusion, applicant's suggestion of superior and/or unexpected results is not persuasive, because the examples compared are not considered commensurate in scope.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571)272-1523. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (571) 272-1526. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

D.G.
January 23, 2004